BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, DC 20554

In the Matter of	)	
High-Cost Universal Service Support	)	WC Docket 05-337
	)	
Federal-State Joint Board on Universal Service	)	CC Docket 96-45
	)	

COMMENTS OF

CONNECTED NATION, INC.

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SUMMARY

Connected Nation, Inc. is a non-profit organization that is dedicated to one goal: to make technology work for previously underserved communities and markets across the United States in a way that improves community life and economic development while enhancing markets for technology providers so that no community suffers the repercussions of digital exclusion. As a result, Connected Nation wholeheartedly supports the recommendation by the Federal-State Joint Board on Universal Service to create a $300 million annual Broadband Fund to be largely administered by the states and primarily designed to support the construction of broadband facilities in unserved areas. Connected Nation -- beginning with our pilot ConnectKentucky program and our current efforts in Tennessee, Ohio, and other states -- has been actively and directly working with state and local communities on broadband deployment for several years, and in these Comments, we offer several suggestions to the Commission as to how to make the Broadband Fund an effective, efficient and fiscally responsible tool for bringing broadband to every community in the country.

Connected Nation believes that community-driven, demand-side programs are the key to a successful and cost-effective Federal Broadband Fund. An effective universal service strategy for America should tackle both sides of the problem -- demand as well as supply.

According to the Government Accountability Office, availability of broadband networks is a barrier for an estimated 9% of American households. In states with large rural populations, this percentage is much higher. As the Joint Board's Recommended Decision suggests, ensuring universal access is imperative. However, demand-side factors play a significant role in private sector decisions on broadband deployment. While United States broadband availability is

estimated at 91%, only 54% of American households actually use broadband, and our research, consistent with market data, has shown that in low-income and rural areas, these adoption rates are even lower. Barriers to adoption are primarily driven by lack of computer ownership, technology illiteracy and a perceived lack of need for the service. These conditions place a ceiling upon the profitability of private sector deployment, and the result is that many low-income or rural communities are at risk of being left behind.

Fortunately, that ceiling can be raised, and in a cost-effective way. In these Comments we describe Connected Nation's comprehensive demand stimulation programs. When implemented successfully, these programs attract private sector broadband investment in many previously unserved areas, without the need for public infrastructure subsidies. There are still, of course, areas that remain uneconomic for the private sector to serve without a subsidy, but demand stimulation programs help to significantly shrink those areas and identify them with particularity. These programs will minimize the areas that require infrastructure subsidies, develop detailed information about these unserved areas that will make reverse auctions for infrastructure subsidies more effective, and also help ensure that those areas most in need receive subsidies first. The demand-stimulation programs implemented by ConnectKentucky in all 120 Kentucky counties helped promote private investment in that state and reduced the amount of "unserved" areas from 40% prior to the beginning of the program to 5%. Implemented nationwide, such programs can have a dramatic impact on the level of subsidies that would be needed to achieve universal broadband, by several orders of magnitude.

Connected Nation is not asking that demand-stimulation programs be funded by the Broadband Fund. But the Commission's Broadband Fund rules and policies should facilitate and promote -- not impede -- state and community-driven efforts. Doing so will help make the

Broadband Fund substantially more cost-effective, efficient, and fiscally responsible. As a result, we make the following recommendations to the Commission:

1. **Broadband deployment mapping should be required for states to be eligible for the Universal Service Broadband Fund.** Connected Nation strongly agrees with the Joint Board's assessment that prior to receiving funding from the Broadband Fund, states should conduct a detailed broadband mapping project. Detailed broadband maps are critical in ensuring that resources are expended in unserved areas, and it is vital that these maps be produced at the state level in coordination with broadband providers and local community leaders.

2. **A cost-effective and fiscally responsible Broadband Fund should incorporate state and community-driven demand stimulation initiatives.** Broadband maps are only the beginning of the process. In order to create a fiscally responsible program, Connected Nation believes that the Commission should make broadband funds available only to states that have both a broadband mapping project and a comprehensive demand stimulation program in place. Having such programs would make limited Broadband Fund subsidies far more effective. Moreover, requiring that states engage in demand stimulation programs as a condition for eligibility for the Broadband Fund would ensure that Broadband Fund subsidies are utilized for areas that truly need these subsidies. Doing so will stretch the limited dollars available under the Broadband Fund much further and ensure that the Commission obtain the most "bang for the buck."

3. **State and private sector funding for mapping and demand stimulation programs should be eligible as matching funds for the Broadband Fund.** The Joint Board has recommended that states provide "matching funds" for Broadband Fund disbursements. Connected Nation believes that public and private sector expenditures on broadband mapping and demand-side programs within a state should be eligible to serve as matching funds for Broadband Fund subsidies. Our experience has shown that these programs are very cost-effective methods of spurring broadband adoption and deployment. As discussed above, these demand-side programs can sharply reduce the level of "unserved" areas in a state at far less cost than infrastructure subsidies.

4. **Broadband Funds should be allocated to states based on exogenous factors.** Baseline broadband fund subsidies should not be allocated to states simply based upon a count of the number of unserved households. Connected Nation fears that doing so may create an incentive for states to delay the implementation of cost-effective broadband demand stimulation programs, because successful programs will lower the amount of baseline support available to a state. Instead, Connected Nation recommends that baseline funding be apportioned based upon the demographics statistics of unserved homes (including household density, educational attainment, income and computer ownership) as well as factors affecting network deployment driven by terrain and topography considerations. In this manner, eligibility

requirements for base support will mirror factors affecting market-based decisions, provide an objective benchmarking tool that will help prioritize federal subsidies where they are most needed, and eliminate possible preserve incentives to delay effective state programs for broadband adoption and deployment.

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The deployment and adoption of broadband infrastructure and services is the paramount policy challenge facing the communications and information technology industries today. Full deployment of broadband can improve our schools and health services, enliven democracy, and spur economic growth. For small and rural communities, the availability and affordability of broadband services can mean the difference between having a place in the 21st century Information Economy or being left behind with little prospect for economic growth and the ability to retain the younger and more productive members of their communities. For poor urban communities, where broadband subscriptions remain critically low, broadband is a critical communications pathway that offers the prospects of a better education and a better future.

Connected Nation, Inc. is a non-profit organization that is dedicated to one goal: to make technology work for previously underserved communities and markets across the United States in a way that improves community life and economic development while enhancing markets for technology providers so that no community suffers the repercussions of digital exclusion. Connected Nation wholeheartedly agrees with the emphasis that the Commission and the Federal-State Joint Board on Universal Service has placed on this fundamental policy challenge, and Connected Nation's experience in working with communities across various states has

shown that tremendous strides can be made in broadband deployment and adoption at relatively low cost. The proposed creation of a Broadband Fund presents the Commission the opportunity to join and enlist the assistance of these effective and cost-efficient state and local community initiatives. In this spirit, Connected Nation offers these comments in response to the Joint Board's Recommended Decision and the Commission's subsequent Notices of Proposed Rulemaking in the above-referenced dockets.[1] Connected Nation's specific comments on the Commission's Notices and its proposals are found in Section III below.

I. Connected Nation and the Effectiveness of Broadband Demand Stimulation Programs

Connected Nation is a non-profit organization that grew out of a very successful pilot initiative called ConnectKentucky, which is working toward the universal availability of broadband services in the state of Kentucky.[2] Connected Nation believes that no community should be left behind and that it is the responsibility of government and policymakers to ensure that all communities and individuals have the opportunity to participate in the information economy. Importantly, Connected Nation has learned that the most effective means of doing so

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[1] *Federal-State Joint Board on Universal Service,* WC Docket No. 05-337, CC Docket No. 96-45, Recommended Decision, FCC 07J-4 (Fed.-St. Jt. Bd., rel. Nov. 20, 2007) ("*Recommended Decision*") , attached as Appendix A to *In the Matter of High-Cost Universal Service Support, Federal-State Joint Board on Universal Service,* WC Docket No. 05-337, CC Docket No. 96-45, Notice of Proposed Rulemaking, FCC 08-22 (rel. Jan. 29, 2008) ("*Recommended Decision NPRM*"). Connected Nation's Comments are limited to the Joint Board's proposals regarding the creation of a Broadband Fund, state role and responsibilities, state matching funds, allocation of funds among states, identifying unserved areas, and related implementation recommendations. *Recommended Decision, supra,* at ¶¶ 12-15, 29, 35-38, 44-53, 55-62, 70-71, 74-75. Connected Nation's Comments also apply to the Broadband Fund "pilot program" discussed in the *Reverse Auctions NPRM*. *In the Matter of High-Cost Universal Service Support, Federal-State Joint Board on Universal Service,* WC Docket No. 05-337, CC Docket No. 96-45, Notice of Proposed Rulemaking, FCC 08-5, ¶¶ 50-51 (rel. Jan. 29, 2008) ("*Reverse Auctions NPRM"*).

[2] Senator Richard Durbin recently said that "[s]ince its formation in 2001, Connect Kentucky has brought state government, providers, technology companies, and economic development units together to build one of the most innovative organizations in the country. . . . On a budget of only a couple million dollars per year, this organization has become a driving force of economic development and telehealth and education in the State of Kentucky." Sen. Richard Durbin, Floor Statement: Increasing Broadband Access to Improve Competitiveness (Apr. 24, 2007). Available at: http://durbin.senate.gov/showRelease.cfm?releaseId=280899.

is to enlist and coordinate the efforts of grassroots community organizations, the educational community, the private sector, and local public sector officials by providing them with information about where broadband is lacking or unavailable and spurring these forces into action. Connected Nation creates strong, community-based, public-private partnerships that are determined to act on those ideas and turn them into goals and measurable realities.

Connected Nation strongly believes that key to the success of the proposed federal Broadband Fund is to enlist and incorporate comprehensive, statewide, community-driven broadband demand stimulation programs into the fund's rules and policies. In order for the Broadband Fund to achieve the most "bang for the buck," subsidies for broadband infrastructure need to be targeted to areas that the private sector is truly not capable of serving profitably. Identifying those areas requires far more than drawing a map—it also requires hands-on coordination, discussion, and planning between community leaders, local businesses and public officials, IT professionals, and broadband providers. Connected Nation has learned that private sector investment, without subsidies, will follow such demand-stimulation programs.

In this Section, we provide more detail on Connected Nation's programs, with particular focus upon our comprehensive, statewide strategy to promote the adoption of broadband services and network investment. These programs do not eliminate the possible need for broadband infrastructure subsidies in high-cost areas, but they certainly minimize the geographic scope of those areas. This discussion demonstrates that broadband demand-stimulation programs combined with a state-level mapping and research strategies can help make the Broadband Fund far more cost-effective. As a result, such programs certainly warrant a place in a comprehensive national broadband policy. While Connected Nation does not advocate that the Broadband Fund directly support demand-stimulation programs, a fiscally-responsible and cost-effective

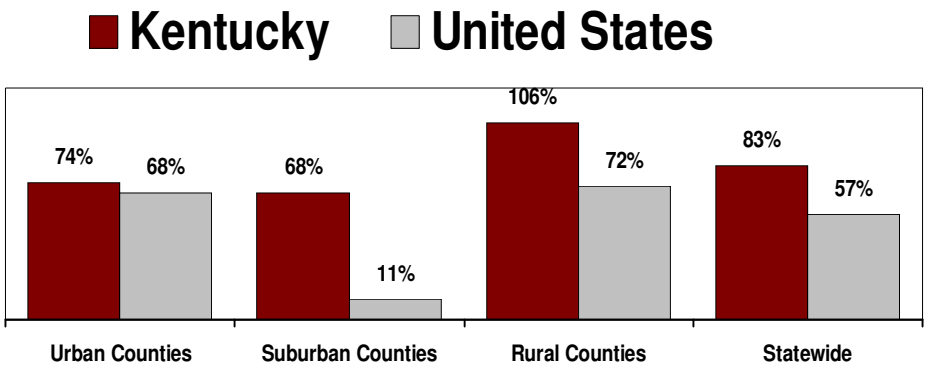
Broadband Fund would ensure that state and community-driven, demand-stimulus programs be in place and operational as a condition for states to be eligible for Broadband Fund subsidies.

A. The Link Between Demand-Stimulation Programs and Broadband Infrastructure Investment

Beginning in 2002, Connected Nation's pilot program, ConnectKentucky, spawned many ideas and concepts that were designed to improve Kentucky's place in the knowledge-based, broadband-enabled economy. Most importantly, ConnectKentucky undertook substantial research to identify the challenges that hindered many communities in Kentucky from reaching those goals, particularly many rural communities. By 2005, our research led us to devise a strategy that combines complementary programs for demand promotion and private supply enhancement.

Our efforts have paid off, as broadband adoption has grown considerably faster in the state of Kentucky than elsewhere in the United States in the last few years. As can be seen in Figure 1, adoption rates in Kentucky grew from 24% of households subscribing to broadband services in 2005 to 44% at the end of 2007. This represents a growth rate of 85%, which compares favorably with the national average growth rate of 57%. Broadband demand grew particularly fast in rural counties in Kentucky, registering an adoption growth rate of 106% during the same period.

FIGURE 1: 2005 -2007 BROADBAND ADOPTION GROWTH RATES IN KENTUCKY AND THE USA



Importantly, as demand for broadband services grew, broadband network capacity in Kentucky increased from an estimated 60% of households passed in the state of Kentucky prior to the beginning of the program, to 95% at the end of 2007.[3] This increase in private broadband infrastructure investment followed from the demand growth, making previously unviable business cases for wireline and wireless broadband networks a profitable proposition. Largely as a result of our demand side programs and subsequent private sector investment, the number of households that remain unserved in Kentucky has dramatically decreased. This has had the very positive effect of substantially reducing (albeit not eliminating) the need in Kentucky for any subsidy funds from a federal Broadband Fund. If such demand-stimulation programs were implemented nationwide, there could be a dramatic impact on the level of subsidies that would be needed to support universal broadband, by several orders of magnitude.

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[3] For more information *see* Connected Nation, *The Economic Significance of Stimulating Broadband Nationally* (Feb. 21, 2008). Available at http://www.connectednation.org/documents/NewForPrint_2008_02_21_TheEconomicImpactofStimulatingBroadbandNationally_AConnectedNationRep.pdf.

B. Connected Nation's Grassroots Strategy for Broadband Demand Stimulus & Investment Promotion

In each state where it operates, Connected Nation embarks upon a comprehensive approach focusing on demand-side and supply-side aspects of the broadband market. There are three steps to this process. First, Connected Nation focuses its efforts on collecting supply-side information from private broadband providers that it translates into granular, statewide maps of broadband availability. This supply-side information is complemented with information about demand-side factors through market research. The goal of this research is to better understand key barriers to broadband adoption at the community level and to evaluate how broadband services and applications are affecting business and households where they are in use.

The mapping and research activities provide the necessary information to effectively undertake the second, core component of the program: a comprehensive, grassroots effort to engage community leaders in the development of a pragmatic broadband policy plan that aims at tackling the barriers to adoption in each particular community. The third component relates to computer ownership, which our research has consistently shown to be the number one barrier to broadband adoption. Connected Nation's No Child Left Offline® (NCLO) program tackles this problem directly by bringing computer equipment to underprivileged children. These community and education efforts have the effect of generating demand for broadband services in previously-unserved areas, and this demand spurs additional private sector broadband network investment. The effect is to sharply and quickly decrease the geographic scope of "unserved areas" in the states in which Connected Nation operates, a lesson that should be incorporated into the operation of the proposed federal Broadband Fund.

1. Mapping and Research

As the first stage of the Connected Nation complementary programs, Connected Nation's first order of business is to better understand the state of demand and supply of broadband services in the state. This critical information provides a better understanding as to what technology infrastructure exists within communities, how and why residential consumers and businesses are using (or not using) available technology, and which demographic disparities might define the digital divide for each community. This information is periodically updated and is the starting block for assessing broadband expansion plans within a given community. This information helps the community leaders, private sector, and state and local officials to develop a viable broadband and technology plan within a local community through the eCommunity Leadership Teams, discussed below. The research conducted by Connected Nation has two key components that address both the supply and demand of the broadband market: mapping and survey research.

Broadband Inventory Maps. Connected Nation's maps are a street-level inventory of broadband infrastructures in existence in a community. Connected Nation's approach provides a statewide inventory of existing services while creating a detailed picture of where broadband gaps need to be addressed. These inventory maps are enriched with information from the U.S. Census Bureau detailing topographic, demographic, and relevant, civil infrastructure information. This granular, rich data provides critical information for the development of sound public policy and network expansion business plans, including a detailed description of household density and relevant demographic and economic information about unserved areas. All of this information is made available to the general public in an interactive mode accessible via the Internet.

Connected Nation's broadband inventory maps are the first of their kind, presenting detailed information to the public at large on the existing broadband capacity within a region. This information is critical to help the carrier community better understand the business opportunities that are readily available. Maps are updated quarterly to keep consumers, government officials, and the private sector abreast of the progress made and continued opportunities for further capacity build-out.

Examples of Connected Nation's interactive, broadband inventory, and statewide maps can be found in at the following sites:

http://www.connectkentucky.org/broadband_landscape/interactive_map.php or http://www.connectedtennessee.org/mapping_&_research/Interactive_Mapping.php.

One example of household density maps in areas unserved by broadband networks can be found at ftp://ftp.connectednation.com/CNPublic/SC/Statewide/Household_StatewideSC.pdf .

Non-interactive examples of these maps are attached in Appendix A to these Comments.

This broadband mapping initiative is the first step in identifying service area gaps in each county, which is then complemented with further research and the "eCommunity" demand stimulation planning described below. Connected Nation keeps these county-level broadband inventory maps constantly updated and available at Connected Nation's state subsidiary websites. For an example of one county level broadband inventory maps from Kentucky, see ftp://ftp.connectky.org/PUBLIC/Mapping/CountyMaps/CountyHousehold/Household_Edmonson.pdf.

Survey Research. Connected Nation engages in extensive survey research to better understand the barriers to broadband technologies and applications within a given community. This research also helps identify pent-up demand for prospective services in communities that

private broadband service providers may not yet recognize. All of this information is essential in developing broadband capacity build-out plans within a community.

The barriers to adoption of broadband technologies and applications vary widely and depend on income, education, geography, and cultural factors. Household level of computer ownership and literacy, awareness of broadband applications, and their impact on broadband adoption rates are important barriers to adoption, and Connected Nation utilizes statewide surveys of residential consumers to examine these key questions.

Examples of these reports are available to the public through our ConnectKentucky website at http://www.connectkentucky.org/research/kentucky_technology_trends.php and our Connected Tennessee website at http://www.connectedtennessee.org/_documents/CTResidentialSurvey100107.FINAL.pdf .

This state level research is then drilled down to the county level in order to inform the tactical strategy in each county or community, because a "one size fits all" approach will be less effective for creating eCommunity broadband plans. For example, the plan for a mountainous, mining community in Eastern Kentucky will be substantially different than the challenges faced in the farming communities of northern Ohio.

Examples of the county level technology assessment that Connected Nation prepares to begin its strategic demand promotion plan in each county and community can be found at http://www.connectkentucky.org/find_your_county/counties/ or http://www.connectedtennessee.org/ecs/counties/. For an example from one county among all 120 Kentucky counties where these efforts have been undertaken see

http://www.connectkentucky.org/NR/rdonlyres/AB082DDC-7DDB-4B25-8A7C-96CBEF6375C0/0/62_EDMONSONCOUNTYTECHNOLOGYSTATISTICS.pdf.

The Connected Nation mapping and research process is not simply data collection; it is designed to spawn integrated, comprehensive, and collaborative engagement between broadband providers and the communities that they serve. The Connected Nation approach does not just identify the broadband "gaps," it provides the foundation and tools to create a comprehensive and customized plan to fill those gaps. Mapping these broadband gaps allows for an in-depth market analysis of unserved areas, including household densities, potential collocation resources such as water and cell towers, terrain analysis, as well as proposed infrastructure such as water lines, sewer projects, and future roads. The combination of local knowledge and resources with an effective broadband map allows broadband providers and communities to accurately mesh technology deployment with potential users of application development, all while increasing community awareness and adoption.

2. eCommunity Leadership Teams

Importantly, Connected Nation's work does not end with the broadband inventory maps and survey research. In fact, these are just the beginning of an effective demand-stimulation program. Connected Nation utilizes this research to create a community-driven technology planning process that creates demand for broadband and information technology services, which in turn drives private sector investment that shrinks the unserved areas in those communities.

Local community and business involvement in unserved areas is critical to the success of the Connected Nation program because, unfortunately, many of the benefits of broadband go unrecognized or unrealized outside of the business community, particularly in the most rural

areas. Even where broadband is available, the adoption rates are often low, and low take rates mean that such areas will likely not receive the next generation of higher capacity broadband services. As a result, a key to encouraging adoption is to demonstrate how technology can impact the quality of life locally across all relevant sectors of the local economy.

Connected Nation has developed a strategy to tackle this problem through grassroots involvement called "eCommunity Leadership Teams." These teams become the point of contact between broadband service providers and local communities. Community leaders come from key sectors such as healthcare, education, security and the local private and public sector, all of whom volunteer to develop and implement technology promotion plans within their communities. In this manner, our model fosters a sustainable, grassroots coalition of community leaders representing local government, education, healthcare, businesses, government, libraries, agriculture, tourism and community-based organizations. Connected Nation brings information technology consultants that specialize in community-based technology planning that help communities effectively and efficiently leverage broadband and computer technology. Connected Nation also helps communities quantify their existing use of technology -- information that is valuable in attracting private sector broadband infrastructure investment -- and also help identify alternative broadband technologies (such as WiMax) that might provide solutions in particularly hard-to-serve areas.

The goal of these eCommunity Leadership Teams is to devise a comprehensive community-based technology planning program. These programs are county-level tactical technology expansion plans that provide detailed analysis of the best means of deploying new and available technology across each of the aforementioned sectors. The overarching purpose of

these eCommunity Leadership Teams is to create and aggregate demand for broadband, identify locally relevant applications or solutions, foster cooperation across both private and public sectors to ensure that the community's needs are fully addressed, and create local awareness of the opportunities of broadband.

These teams are the heart of the success of Connected Nation's comprehensive strategy to promote broadband demand and stimulate private investment. Through these teams, communities are engaged in their digital futures and take charge of practical, viable and sustainable solutions that address the particular barriers to broadband availability and adoption in those communities. Examples of these grassroots efforts can be found in Appendix C, which contains the Strategic Technology Plan for Edmonson County, Kentucky, or on our website at http://www.connectkentucky.org/NR/rdonlyres/C9A183EF-A864-45C4-8147-9300E441D63A/0/1_EDMONSONCOUNTYSTRATEGICTECHNOLOGYPLAN.pdf. The ultimate results of these efforts, however, can be found in the countless success stories that are compiled in our *Connected* newsletters, which can be found at http://www.connectkentucky.org/news_&_events/Publications/connected.php.

These community programs are successful because they build sustainable, grassroots support for broadband adoption and deployment. Broadband providers will invest in networks in areas where they know that demand for their service is present and sustainable—and the eCommunity Leadership Teams provide that demand stimulation and stability.

3. No Child Left Offline® (NCLO)

Another component of Connected Nation's work is the No Child Left Offline program. We have consistently found that the primary barrier to broadband adoption is lack of computer

ownership and lack of understanding the value proposition of broadband services. According to research conducted by ConnectKentucky, 52% of households who do not have access to Internet services at home (broadband or dialup) reported lack of a computer as the primary reason for the lack of connectivity.[4] Research conducted in Tennessee shows similar results.[5] This data is supported by academic research that shows that education and income inequality are important factors that explain low broadband adoption rates.[6]

These results are so endemic and impact "take rates" so significant (and not simply in rural, high-cost areas) that if left unaddressed, they necessarily will drive investment decisions by broadband service providers. Even if currently served by broadband service, low-income areas with low computer ownership levels are at risk of not seeing the next generation of broadband service in a timely manner. In response, Connected Nation created the No Child Left Offline program. No Child Left Offline brings together public and private partners to promote digital inclusion by placing computers in the hands of disadvantaged children and their families.

No Child Left Offline has already delivered approximately 2,000 Internet-ready computers to disadvantaged individuals and families across the state of Kentucky. A mirror program being implemented in Tennessee by Connected Tennessee and the state's Department of Human Services and the Department of Children's Services is scheduled to deliver 3,000 computers to underprivileged children and their families in the next three years.

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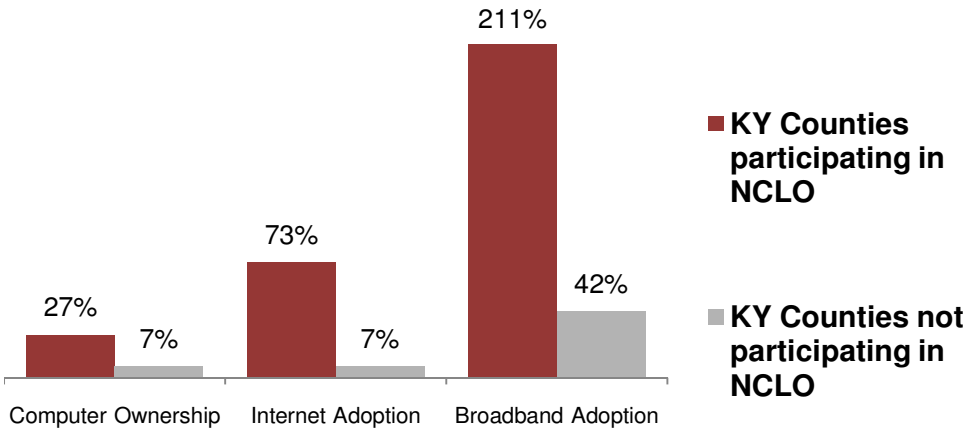
[4] ConnectKentucky, *2007 Kentucky Technology Trends: Results of the 2007 ConnectKentucky Residential Survey*. Available at http://www.connectkentucky.org/_documents/2007KentuckyTechnologyTrends_residential_3-28-08_001.pdf.

[5] Connected Tennessee, *Technology Assessment of Tennessee Residential Consumers* (Sep. 2007). Available at http://www.connectedtennessee.org/_documents/CTResidentialSurvey100107.FINAL.pdf.

[6] *See* G. S. Ford, T. M. Koutsky and L. J. Spiwak, *The Demographic and Economic Drivers of Broadband Adoption in the United States,* PHOENIX CENTER POLICY PAPER No. 31 (Nov. 2007). According to the Phoenix Center, "broadband adoption is intimately tied to demand-side factors like income inequality and education, and policies directed at those factors may be more cost effective than supply-side subsidies and regulation." *Id.* at 5.

No Child Left Offline has had a dramatic impact on the lives of many families. According to the ConnectKentucky 2005 and 2007 Residential Technology Assessments in the last two years, computer ownership among low-income families in No Child Left Offline counties grew nearly four times faster than these families in other counties. During the same two-year period, Internet adoption among low-income families in No Child Left Offline counties grew more than ten times faster relative to these families in other areas of the state. Broadband adoption among low-income families grew five times faster in counties that received computers through No Child Left Offline. In the last two years, home broadband adoption among low-income families has grown by over 200% in these participating counties (Figure 2).[7]

FIGURE 2: HOME TECHNOLOGY ADOPTION AMONG LOW-INCOME FAMILIES



It is quite clear that programs like No Child Left Offline have a substantial impact upon broadband adoption rates. And adoption rates are the key to ensuring that communities continue to receive next-generation broadband investment.

[7] Counties participating in No Child Left Offline include the Kentucky counties of Johnson, Clay, Wolfe, McCreary, Owsley, Carter, Lawrence and Morgan. Low-income is defined as annual household income below $25,000. *See 2007 Kentucky Technology Trends, supra* n. 4, at 27.

C. Demand-Side Programs Stimulate Private Infrastructure Investment and Economic Growth

In states where Connected Nation has implemented these demand-side programs, there has been a dramatic increase in private sector investment in broadband infrastructure in previously unserved areas. In Kentucky, broadband network capacity has grown from an estimated 60% of households passed in the state of Kentucky at the beginning of 2004, to 95% at the end of 2007. Meanwhile the private sector has invested an estimated $860 million in telecommunications networks. Because of ConnectKentucky's programs and the subsequent private sector investment, the number of households that remain unserved has decreased dramatically.

These investments have also resulted in economic growth. Connected Nation estimates the following annual economic gains in Kentucky stemming directly from its ConnectKentucky pilot program:

- $1.06 billion in direct wages from jobs created or saved,
- $9.4 million in self-reported healthcare costs savings,
- $92.1 million in mileage savings from broadband preventing unnecessary driving,
- 46.7 million lbs of CO_2 emissions reduction ($250,000 emission credits),
- $429.8 million value in the 53.4 million hours saved from accessing broadband at home.

The combined estimate for the direct economic impact in Kentucky associated with a higher than expected statewide gain in broadband adoption is $1.59 billion annually.[8]

[8] *See The Economic Significance of Stimulating Broadband Nationally, supra* n. 3, at 19.

Due to this success, it is not a surprise that many would urge that similar programs be adopted nationally. Kenneth Peres, President of the Alliance for Public Technology and Research Economist at the Communications Workers of America, recently stated that "ConnectKentucky provides an incredibly successful model for stimulating broadband build-out and demand that should be adopted nationally."[9] Extrapolating the growth measured in Kentucky to the United States as a whole, a recent study estimates that efforts to stimulate demand for broadband and information technology services could enable annual economic savings and growth in the United States to the tune of:

- $92 billion through an additional 2.4 million jobs,
- $662 million saved in reduced healthcare costs,
- $6.4 billion in mileage saving from unnecessary driving,
- $18 million in carbon credits associated with 3.2 billion fewer lbs of CO_2 emissions,
- $35.2 billion in value from 3.8 billion more hours saved from accessing broadband at home.

The total economic benefit of stimulating broadband and information technology services across the United States amounts to $134 billion per year.[10] The impact could even be greater across economies with lower levels of technology penetration and usage.

[9] *Id.* at 2; *see also* http://www.connectednation.org/documents/CNPressRelease_APTAward_021508.pdf.
[10] *See The Economic Significance of Stimulating Broadband Nationally, supra* n. 3, at 20.

II. An Effective National Policy for Universal Broadband Service Should Address Both Supply and Demand Barriers to Broadband Adoption

Connected Nation wholeheartedly supports the Joint Board's recommendation to create a Broadband Fund that is designed to support the construction and operation of broadband facilities in unserved areas.[11] However, Connected Nation believes that universal service for broadband must be framed within the broader market context. Public policy to ensure universal access for broadband services should not focus solely on the narrow goal of supply side subsidies but also should incorporate demand-side factors. Only when all Americans adopt the technologies that broadband enables will communities and the economy see the benefits and welfare gains that broadband applications and services provide.

Academic research demonstrates the critical role that broadband adoption rates --not merely availability -- can play in economic development. In particular, a recent report prepared for the Department of Commerce by the Massachusetts Institute of Technology Communications Futures Program demonstrated the substantial economic impact upon local communities by showing that communities in which mass-market broadband was available "experienced more rapid growth in employment, the number of businesses overall, and businesses in IT-intensive sectors, relative to comparable communities without broadband." But the MIT report also sounded a cautionary note because it found that for most of those economic benefits to appear,

[11] *Recommended Decision*, *supra* n. 1, at ¶ 12. "Secondary" purposes of the broadband fund are to fund "new construction to enhance broadband service in areas with substandard service" and "to provide continuing operating subsidies" in low-density areas where "an economic case cannot be made to operate broadband facilities, even after receiving a construction subsidy." *Id.*

"*broadband had to be used*, not just available."[12] Without demand-stimulus programs, much of the economic potential that broadband technology offers may very well remain untapped.

Connected Nation has learned that active government assistance and support is required to build broadband infrastructure in many communities, and there is a role for this type of traditional government subsidy program. Yet infrastructure subsidies are only *one* part of a cost-effective and potent broadband promotion program. Low broadband adoption (or "take rates") themselves are a substantial barrier to broadband infrastructure investment in many communities.

The Government Accountability Office has found that lack of availability of broadband networks is a barrier for an estimated 9% of American households.[13] In states with large rural populations, this percentage is much higher. But the GAO continued to observe that

> [a] variety of market and technical factors, as well as federal and state government efforts and access to resources at the local level have influenced the deployment of broadband infrastructure. Most importantly, companies contemplating the deployment of broadband infrastructure consider both the cost to deploy and operate a broadband network *and the expected demand for broadband service*.[14]

Therefore, while the GAO estimates broadband availability in the United States at 91%, only 54% of American households actually use broadband.[15] This data indicates that network availability, or supply side constraints, are not the only or primary barrier to adoption of

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[12] S.E. Gillett, W.H. Lehr & M. Sirbu, *Measuring Broadband's Economic Impact,* Final Report, p. 3 (Feb. 28, 2006) (emphasis added). Available at: http://www.eda.gov/ImageCache/EDAPublic/documents/pdfdocs2006/mitcmubbimpactreport_2epdf/v1/mitcmubbimpactreport.pdf). *See also* G. Ford & T. Koutsky, *Broadband and Economic Development: A Municipal Case Study from Florida*, 17 REVIEW OF URBAN & REGIONAL DEVELOPMENT STUDIES 216 (2005).

[13] U. S. Governmental Accountability Office, *Telecommunications: Broadband Deployment Is Extensive throughout the United States, but It Is Difficult to Assess the Extent of Deployment Gaps in Rural Areas*, GAO-06-426, p. 18 (May 2006).

[14] *Id.* at 4.

[15] Pew Internet & American Life Project, Oct. 24-Dec. 2, 2007 Survey, *reported in* Lee Rainie, *Pew Internet Project Data Memo*, p. 3 (Jan. 9, 2008). Available at: http://www.pewinternet.org/pdfs/Pew_Videosharing_memo_Jan08.pdf.

broadband services. Connected Nation's survey research supports this conclusion. For instance, 52% of Kentuckians who do not have access to the internet at home (dial up or broadband) report that the reason is that they do not own a computer in the home, 40% claim that they do not need the internet, 17% report that it is too expensive, 8% report that they can get internet access elsewhere, and only 4% report that they do not have access to broadband networks in their home.[16] Survey results in Tennessee reveal a similar trend. When ask why residents did not have an internet connection in the home, 52% responded that they did not have a computer in the home, 31% percent said they did not need internet, 12% reported that it was too expensive, 7% reported that they access the internet in places other than their home and 4% reported that broadband was unavailable in their homes and that they did not want dial-up services.[17]

Faced with this reality, it is natural to expect that private firms will not build broadband infrastructure in areas where they will expect there to be low penetration (or "take rates") due to these demographic, education, and income characteristics. As discussed above, we have found repeatedly that targeted demand-side programs that enlist the support of the local business and educational community can have a significant and near-immediate impact upon the business case for broadband deployment. As a result, private sector investment follows, more infrastructure is constructed, and the size of the "unserved areas" shrinks substantially. In doing so, demand-stimulus programs can help lower the overall level of broadband infrastructure subsidies that would be needed to achieve universal service.

The Joint Board and Commission are to be commended for proposing to integrate broadband technology into the federal universal service program. But doing so should not focus

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[16] *See 2007 Kentucky Technology Trends, supra* n. 4.
[17] *See Technology Assessment of Tennessee Residential Consumers, supra* n. 5.

solely upon providing supply-side subsidies to carriers, because a narrow approach will not directly address the real reasons why many communities today see a dearth of broadband investment.

In January 2008, Ohio Governor Ted Strickland noted that "[t]he digital divide in Ohio takes many forms – from lack of access to computers and broadband services to a lack of technological skills necessary for the jobs of the future." Leaders like Gov. Strickland across the nation are recognizing the importance of a comprehensive approach to broadband -- one that addresses both supply and demand. This holistic approach not only creates a broadband map as the basis for a state's technology-based economic development strategy, and even more importantly for the sustainability and fiscal responsibility of the Broadband Fund, it spurs private investment in broadband infrastructure much further than in the absence of such programs. The result is that broadband network subsidies will be reserved for those locations in which they are absolutely necessary.

Connected Nation believes that community-driven, demand-side programs are the key to making broadband subsidies cost-effective. In short, a comprehensive universal service plan that tackles both demand and supply barriers to adoption would result in a much more cost-effective Broadband Fund. The Commission's Broadband Fund rules and policies should encourage—and not impede— demand-side and community-based programs that can have a dramatic effect on broadband availability and penetration. Given the limited budget for the Broadband Fund, it is perhaps a fiscal imperative that those infrastructure subsidies be directed in the most appropriate and cost-effective way, and demand-side programs can help identify the high-cost areas that are in most dire need of public sector subsidies.

In the following Section III, Connected Nation makes a few very limited proposals that it believes would effectively and appropriately enlist and promote these community-driven, broadband demand programs in a way that would help ensure that the Broadband Fund direct its infrastructure subsidies in the most cost-effective and appropriate way.

III. Connected Nation's Recommendations for the Broadband Universal Service Fund

In this Section, we discuss how the rules and policies of the Broadband Fund can leverage the efforts of demand-side programs like those that Connected Nation has pioneered; not by funding these efforts directly but by creating the conditions that promote the spread of state-based initiatives and allowing for their continued operation and growth.

Most importantly, while the Joint Board has already recommended that states conduct a detailed broadband inventory map before receiving Broadband Fund monies, Connected Nation strongly believes that those state programs should not stop simply at data collection but also should include demand-side programs like Connected Nation's eCommunity Leadership Teams, described in detail in above. Only when states have implemented demand-side efforts can the Commission be sure that the Broadband Fund subsidy dollars that it does disburse will actually be directed at areas in which a business case for broadband deployment is unlikely to be made in the near future given current technology best practices. In the event that the Commission utilizes reverse auctions to award Broadband Fund subsidies, Connected Nation believes that programs such as these can help make those auctions effective, efficient and fiscally responsible. Connected Nation also urges that the Commission recognize that expenditures for demand-side broadband programs qualify as matching grants for Broadband Fund disbursements. Finally, Connected Nation urges that establishing baseline support for states should be allocated using an

algorithm based on structural factors to broadband deployment and adoption—in particular, demographic and topographic and network cost factors, as opposed to a simple counting of "unserved" households.

We do not discuss the vast myriad of questions relating to reform of the universal service system. At this time, our comments are limited to the Joint Board's Recommendation with regard to the Broadband Fund and also to the Commission's Notice of Proposed Rulemaking with regard to the "Broadband Pilot Program" that it has proposed for reverse auctions.[18]

A. Broadband Deployment Mapping Strategies Should Be Required for States to be Eligible for the Broadband Fund

The Joint Board has recommended that the Broadband Fund be distributed as block grants to states in order to support the construction of broadband facilities in "unserved areas."[19] The Joint Board stated that determining with accuracy the size and extent of an "unserved area" in a state is necessary "to ensure that the funds are spent effectively and that no more funding is awarded as needed." As a result, the Joint Board recommended that Broadband Fund monies only be distributed to states that "develop and publish detailed maps of their unserved areas."[20]

Connected Nation strongly agrees with the Joint Board's assessment that broadband mapping is a key component of an effective Broadband Fund. It is fiscally responsible to require states to undertake a broadband mapping initiative prior to receiving federal Universal Service

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[18] In particular, these Comments are directed at the Joint Board's proposal to create a Broadband Fund, its recommendations on state role and responsibilities, state matching funds, allocation of funds among states, identifying unserved areas, and related implementation recommendations. *Recommended Decision, supra* n. 1, at ¶¶ 12-15, 29, 35-38, 44-53, 55-62, 70-71, 74-75. Connected Nation's Comments also apply to the Broadband Fund "pilot program" discussed in the *Reverse Auctions NPRM, supra* n. 1, at ¶¶ 50-51.
[19] *Recommended Decision, supra* n. 1, at ¶ 12
[20] *Id.* at ¶ 15.

funds. Broadband maps that effectively identify the granular gaps in broadband availability are crucial for a number of reasons:

1. ***Broadband Maps Inform Broadband Policy and Ensure USF Dollars are Spent Wisely***

   Broadband maps, when constructed effectively, give state and local policymakers a measurement of broadband availability and a geographic understanding of which parts of a state or locality are unserved. This understanding and knowledge is the first critical step in making the most efficient use of universal service fund dollars by directing funds to areas that are truly unserved.

2. ***Broadband Maps Demonstrate the Broadband Gaps to Service Providers***

   Although most broadband providers have a reasonable understanding of their own networks, many providers -- particularly small providers -- do not have maps of their own service territory, and they usually have a very limited understanding of service territories outside their existing regions. Connected Nation's experience has been that its broadband maps are useful to broadband service firms and can help level the playing field across all providers regardless of incumbency, size, or technology. Effective maps help demonstrate the market conditions of unserved areas, such as household density, terrain analysis, and water/cell towers for potential collocation of fixed wireless facilities. Stated simply, these maps are effective "recruitment" tools that can be used to lure private investment into a community, in a way not dissimilar than how local governments try to entice nationwide retailers or restaurant chains to open up a store in town.

3. Broadband Maps Provide Measurable Benchmarks for the Progress of Broadband Deployment

It is vital that broadband maps are not just created, but also updated and maintained. Connected Nation's mapping strategy involves building relationships and maintaining continuous contact with all broadband providers to ensure new deployments are added to the map each quarter. Thus, stakeholders across a state -- state and local officials, broadband providers, economic development organizations, businesses, and consumers -- have a dynamic view of where broadband exists and where it does not. For the purposes of the Broadband Fund, these regular updates will allow federal policymakers to understand how and where USF dollars are being used and the resulting progress.

4. Connected Nation is encouraged by the Joint Board's Recommendation That Broadband Mapping Efforts be Undertaken at the State Level

In the experience of Connected Nation, the state is the natural and most effective level to conduct such a program for several reasons:

- Early in the ConnectKentucky program, it became evident that solid, meaningful broadband availability data could be obtained only through a cooperative, on-the-ground dialogue with all broadband providers. This continuous dialogue and data-sharing effort requires a flexible mapping system. Many broadband providers -- especially small providers -- do not have data stored in any standard format. Often, Connected Nation works in the field and literally on the ground with providers to understand their networks in order to produce accurate availability maps.
- At a state level, critical quality control of the mapping data can be ensured. Connected Nation's state broadband initiatives have multiple systems in place to verify and validate the accuracy of the broadband availability maps, and then modify

the maps as necessary. Through mechanisms such as online map feedback and map hotlines, consumers have direct input on the accuracy of the maps. (These online and telephone systems are also used to aggregate demand for broadband services in unserved areas across a state.) Additionally, local community leaders through Connected Nation's grassroots eCommunity Leadership Teams serve to validate the accuracy of the maps at a local level.

- For historical reasons, state jurisdictional boundaries have brought about a natural state-based order for broadband providers—even those providers that operate in multiple states. State agencies and state-based associations are already organized to enable effective communication with providers across a state. Scaling mapping up from a local to a state level creates economies of scale without losing critical local-level involvement in the mapping process.
- At a state level, broadband programs can be designed in conjunction with other state level economic development and educational programs, thereby creating statewide efficiencies for ensuring a state's technological infrastructure is coordinated with its online applications for citizen services.

When West Virginia announced its statewide broadband mapping initiative in August 2007, Senator Jay Rockefeller said, "We need to provide everyone with the benefits that a powerful broadband network can bring, and mapping creates the foundation for making that a reality here in West Virginia."[21] Connected Nation agrees; state level broadband maps are the foundation for a successful broadband expansion effort in any state, and for all of the United States.

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[21] *Verizon Announces Plans to Expand High-Speed Internet Availability for Rural West Virginians,* TMCNET (Aug. 15, 2007). Available at http://www.tmcnet.com/usubmit/2007/08/15/2864501.htm.

That said, and as discussed below, Connected Nation believes that it is not enough simply to generate a map. Only when these maps are used as part of a comprehensive approach to broadband expansion that these maps do they become effective tools in fostering the availability of broadband.

B. Broadband Fund Policies and Rules Should Recognize the Role of State and Local Demand-Promotion Programs

As discussed above, Connected Nation believes that broadband deployment can be promoted very cost-effectively by means of demand-promotion programs. Our experience has shown that broadband services providers often will invest in broadband infrastructure in communities when they know that there is sustainable demand. Demand-stimulation programs and community organizations such as our eCommunity Leadership Teams provide that stability and growth in demand that facilitates private sector investment. In doing so, these efforts narrow the gaps in broadband service availability and decrease the level of "unserved areas" in a state.

There are two ways in which the Commission can facilitate and promote the use of demand-stimulation programs as part of its Broadband Fund policies.

First, the Commission not only should require states to have detailed mapping programs in place before receiving Broadband Fund monies, the Commission also should require that states have in place demand-stimulation programs. Connected Nation supports the Joint Board recommendation that states should "increase[e] demand" and "award grants to carriers only when demand-side stimulation, state incentives, and borrowing are demonstrably inadequate."[22] Broadband infrastructure subsidies should be reserved for areas in which the "best practices"

[22] *Recommended Decision, supra* n. 1, at ¶ 54.

business case truly does not support broadband deployment. There is, frankly, no reason why the Commission's policies should not promote widespread use of these demand-stimulation programs. And given the fiscal realities of the Broadband Fund, it would be fiscally imprudent not to do so.

As discussed above, Connected Nation believes that community-driven, demand-side programs are the key to making broadband subsidies cost-effective. Connected Nation's subsidiary ConnectKentucky first created a broadband availability map for the State of Kentucky in early 2005. ConnectKentucky did not generate maps simply to support an application for a subsidy—it used these maps to organize county-by-county community technology plans, educate the public and service providers, and inspire community leaders to take charge of the broadband futures of their communities. The result is that growth of broadband adoption in Kentucky has exceeded the national average and, just as importantly, the percent of Kentucky households that remain unserved shrank to 5%. No universal service subsidies were needed to spur this private investment by the industry into Kentucky—investment by the industry followed the increased education, focus and attention that ConnectKentucky's programs brought to the table. Kentucky demand-stimulation programs have dropped the level of broadband subsidies that would be needed to achieve universal service in Kentucky substantially, and there is no reason to believe that similar programs would not have similar effects in other states.

It is clear that widespread adoption of demand-stimulation programs like those used in Kentucky would dramatically increase the pace of private-sector broadband infrastructure investment. If the Broadband Fund is, as noted by Joint Board member Commissioner Larry S.

Landis, to be the "funding source of last resort,"[23] it is only prudent to require that all possible steps -- including demand-stimulation programs -- be undertaken before Broadband Fund subsidies are awarded. In doing so, the limited funds available from the Broadband Fund would be much more targeted and directed at the communities that need subsidies the most.

Second, the Commission should recognize that state, community, and private sector funding for mapping and demand-stimulation programs qualify for Broadband Fund matching funds. The Joint Board has recommended that a certain portion of Broadband Fund subsidies be tied to "state matching funds."[24] Connected Nation believes that expenditures on demand-side initiatives should qualify as these state matching funds. Matching funds should not be limited to state supply-side infrastructure programs -- especially since demand-side initiatives have proven to be effective in stimulating broadband deployment.

While the Joint Board Recommendation does not go into detail as to what expenditures would qualify, two Joint Board members specifically noted in their separate statements that expenditures on demand-side programs should qualify as state matching funds. Commissioner Ray Baum specifically noted that "[s]upplemental allocations [from the Broadband Fund] would match state efforts similar to ConnectKentucky."[25] Commissioner John D. Burke stated:

> For states to authorize their own funding mechanisms, and thereby facilitate the matching grants proposal, will require effort. Solid models for such funding mechanisms exist in the ConnectKentucky example and in Vermont's Act 79 of 2006. If adapted to each state's needs, this effort will create a partnership among the federal government, state governments and private industry that will, I believe be the fastest and most cost efficient method of serving all of our citizens, even those in the areas that are hardest to serve.[26]

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[23] *Recommended Decision, supra* n. 1, Separate Statement of Commissioner Larry S. Landis.
[24] *Recommended Decision, supra* n. 1, at ¶¶ 50-52.
[25] *Id.*, Separate Statement of Commissioner Ray Baum.
[26] *Id.,* Separate Statement of Commissioner John D. Burke.

As discussed above, broadband availability in Kentucky is well on its way to universal broadband coverage without a dime of federal universal service subsidy, but instead through the help of ConnectKentucky demand-stimulations programs that have cost approximately $7 million over three years.[27] These programs work, and funds that the state, community, and private sector put into these broadband demand programs should qualify for matching Broadband Fund monies.

C. Base Broadband Funding Levels Should Be Allocated to States Based on Exogenous, Structural Factors

The Joint Board has proposed that "all states are entitled to a base funding level" from the Broadband Fund.[28] Connected Nation believes that any base funding level should not be allocated to states simply based upon a count of the number of unserved households or similar endogenous measures. Connected Nation fears that doing so may create an incentive for states to delay the implementation of cost-effective broadband demand stimulation programs, because successful programs will lower the amount of baseline support available to a state. Instead, Connected Nation recommends that baseline funding be apportioned based upon structural factors affecting network deployment business plans. Such factors should include the demographics statistics of unserved homes (including household density, educational attainment, income, and computer ownership) as well as factors affecting network deployment driven by terrain and topography considerations. In this manner, eligibility requirements for base support will mirror factors affecting market-based decisions, provide an objective benchmarking tool that

[27] ConnectKentucky is funded through both public and private contributions from the state and its corporate partners.
[28] *Recommended Decision, supra* n. 1, at ¶ 50.

will help prioritize federal subsidies where they are most needed, and eliminate possible preserve incentives to delay effective state programs for broadband adoption and deployment.

As in any other government fiscal and stimulus program, the mechanisms for allocating subsidies for network build-out will impact the behavior of private investors and public policy officials. As a result, the base funding level from the Broadband Fund should be allocated using a mechanism that is not linked to any existing, endogenous private investment levels but rather to structural factors on the ground. The Commission should avoid promoting incentives for private investors to defer or eschew their investment plans in order to increase their chances of gaining federal subsidies.

IV. Conclusion

From the sparsely-populated farming communities of the Midwest, to the rugged mountains of the coal mining regions of West Virginia, eastern Kentucky, and Tennessee, with help from state government and the private sector, communities are taking charge of their economic futures. Broadband demand stimulation programs such as those pioneered by Connected Nation are bringing together community leaders, local businesses, and broadband service providers in a collective effort to ensure that these communities are not "left behind" and instead are in a position to take their place in the Information Economy.

There is tremendous optimism stemming from such programs—Tennessee Governor Phil Bredesen wants Tennessee "to become a leader in educating our children, providing quality healthcare, and creating economic development opportunities. Broadband technology is an enabler for programs such as distance learning, telemedicine, e-government, and for creating an environment that helps us grow jobs in all parts of Tennessee. Connected Tennessee will ensure

that we have the broadband foundation and computer literacy that will ensure that Tennesseans everywhere can realize the opportunities that are possible when all communities are truly connected."[29] FCC Commissioner Michael J. Copps rightly observed that "[b]ringing broadband to the far corners of the nation is the central infrastructure challenge our country confronts right now."[30] And experience shows that the most cost effective means of achieving this goal is by means of broadband demand-stimulation programs like Connected Tennessee, Connect Ohio, and ConnectKentucky.

Connected Nation strongly supports the Joint Board's proposal to establish a broadband universal service fund and believes that the Broadband Fund will be most successful if it facilitates and works with broadband demand-stimulation programs. In these Comments, Connected Nation has made several recommendations that would accomplish that objective, namely, that

- Broadband deployment mapping should be required for states to be eligible for the Universal Service Broadband Fund;
- A cost-effective and fiscally responsible Broadband Fund should also require state-level demand stimulation initiatives;
- State and private sector funding for mapping and demand stimulation programs should be eligible as matching funds for the Broadband Fund; and
- Base broadband funding levels should be allocated to states based on exogenous, structural factors that mirror market-based challenges for broadband adoption.

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[29] *See* Press Release, Connected Tennessee, Initiative Announced to Create a Connected Tennessee (May 10, 2007) (quoting Gov. Phil Bredesen). Available at http://www.connectedtennessee.org/_documents/PressRelease_ConnectedNationCT_final.pdf .
[30] *Recommended Decision, supra* n. 1, Separate Statement of Commissioner Michael J. Copps.

Implementing these suggestions will ensure that the Commission's Broadband Fund rules and policies facilitate and promote, but not impede, these important state and community-driven efforts. And more importantly, doing so will help make the Broadband Fund substantially more cost-effective, efficient, and fiscally responsible.

Respectfully submitted,

/S/

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Raquel Noriega
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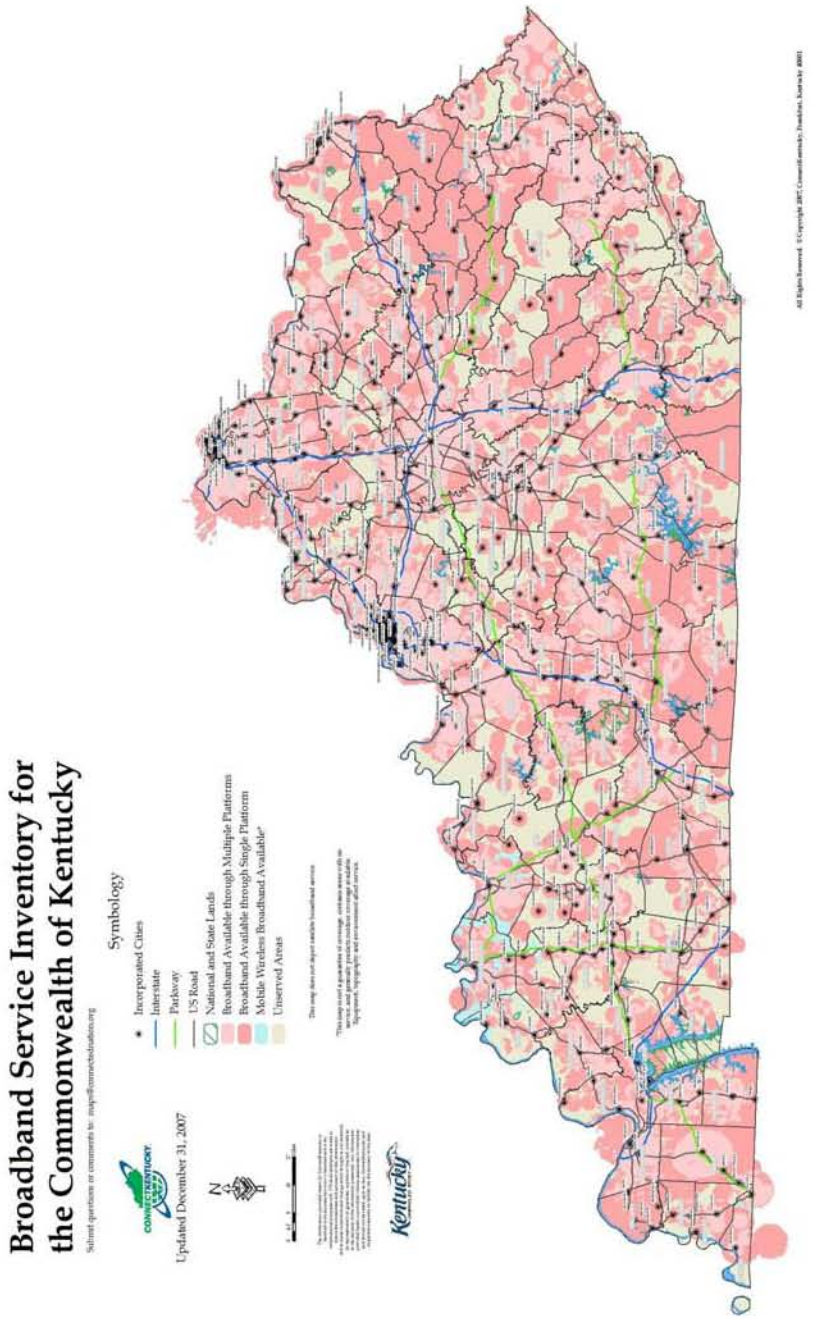
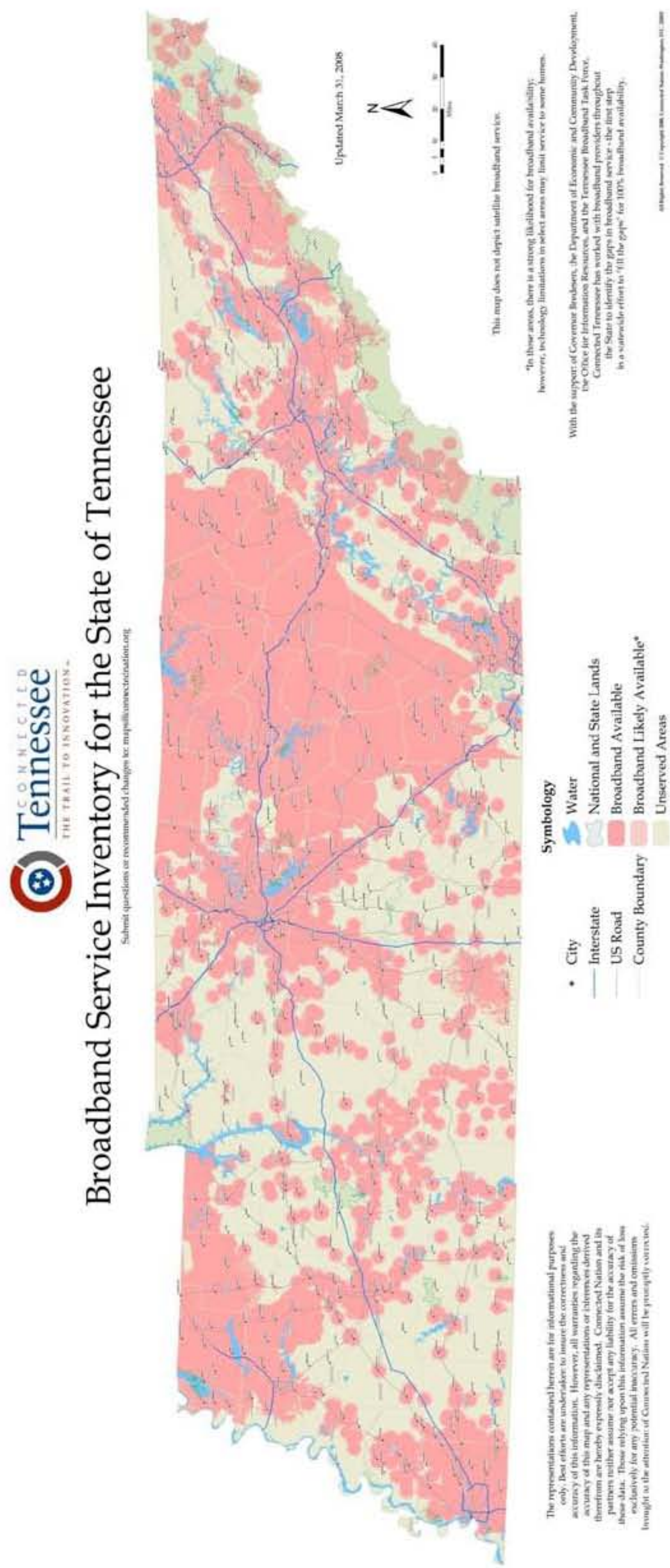
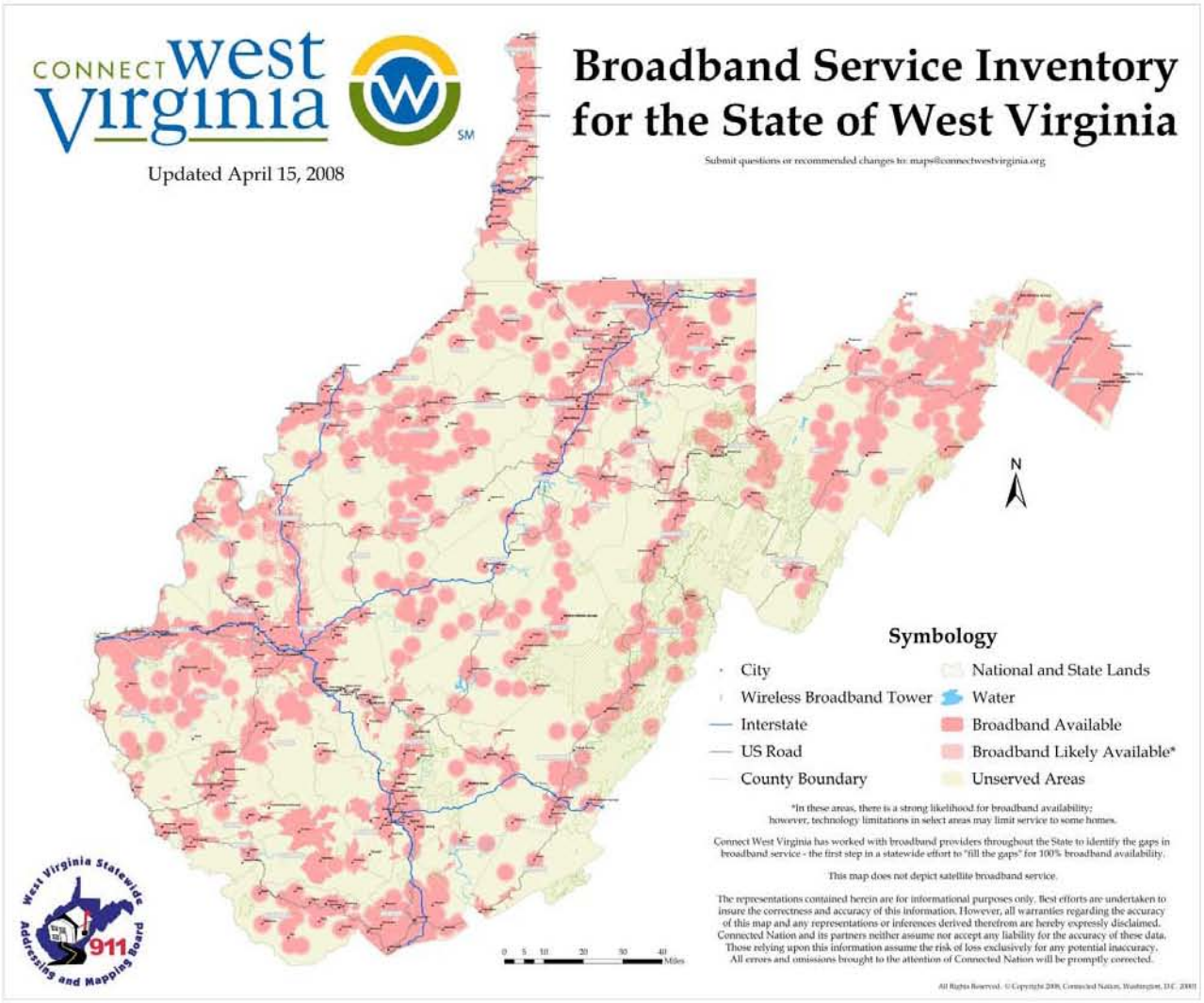
444 North Capitol Street, Suite 224
Washington, DC 20001

April 17, 2008

APPENDIX A: CONNECTED NATION'S BROADBAND INVENTORY MAPS IN KENTUCKY, TENNESSEE, WEST VIRGINIA, SOUTH CAROLINA, WARREN COUNTY, KY, AND LAUDERDALE COUNTY, TN




Connected Tennessee
THE TRAIL TO INNOVATION
Broadband Service Inventory for the State of Tennessee
Updated March 31, 2008
N
This map does not depict satellite broadband service.
Symbology
City
Interstate
US Road
County Boundary
Water
National and State Lands
Broadband Available
Broadband Likely Available*
Unserved Areas


CONNECT west Virginia
SM
Updated April 15, 2008
Broadband Service Inventory for the State of West Virginia
Submit questions or recommended changes to: maps@connectwestvirginia.org
N
Symbology
City
Wireless Broadband Tower
Interstate
US Road
County Boundary
National and State Lands
Water
Broadband Available
Broadband Likely Available*
Unserved Areas
*In these areas, there is a strong likelihood for broadband availability; however, technology limitations in select areas may limit service to some homes.
Connect West Virginia has worked with broadband providers throughout the State to identify the gaps in broadband service - the first step in a statewide effort to "fill the gaps" for 100% broadband availability.
This map does not depict satellite broadband service.
The representations contained herein are for informational purposes only. Best efforts are undertaken to insure the correctness and accuracy of this information. However, all warranties regarding the accuracy of this map and any representations or inferences derived therefrom are hereby expressly disclaimed. Connected Nation and its partners neither assume nor accept any liability for the accuracy of these data. Those relying upon this information assume the risk of loss exclusively for any potential inaccuracy. All errors and omissions brought to the attention of Connected Nation will be promptly corrected.
0 5 10 20 30 40
Miles
West Virginia Statewide Addressing and Mapping Board
911
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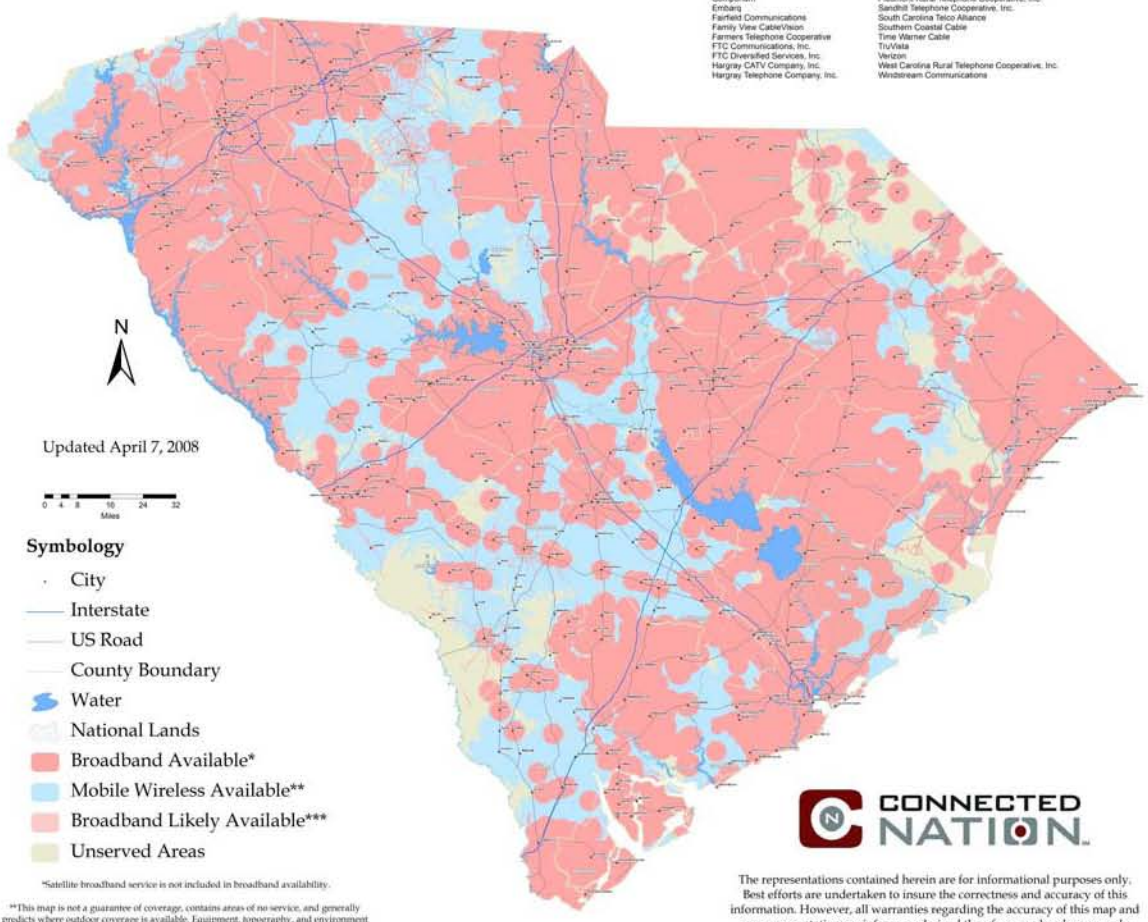
Broadband Service Inventory for the State of South Carolina

Submit questions or recommended changes to: maps@connectednation.org
A digital copy of this map can be obtained at: http://connectednation.com/state_programs/south_carolina.php

36 Providers Are Represented on This Map Including:

AT&T
ACSinc.NET
Aerolina Wireless Networks
Atlantic Broadband
Berkeley Cable TV
Bluffton Telephone Company
Charter Communications
Cheanee Telephone Company
Comcast Cable
Comporium
Embarq
Fairfield Communications
Family View CableVision
Farmers Telephone Cooperative
FTC Communications, Inc.
FTC Diversified Services, Inc.
Hargray CATV Company, Inc.
Hargray Telephone Company, Inc.
Home Telephone Company
Horry Telephone Cooperative, Inc.
HTC Communications, LLC
MainStreet Wireless
Northland Cable
Palmetto Rural Telephone Cooperative, Inc.
PBT Telecom
Pee Dee Online
Personally Complete
Piedmont Rural Telephone Cooperative, Inc.
Sandhill Telephone Cooperative, Inc.
South Carolina Telco Alliance
Southern Coastal Cable
Time Warner Cable
TruVista
Verizon
West Carolina Rural Telephone Cooperative, Inc.
Windstream Communications



Updated April 7, 2008

0 4 8 16 24 32
Miles

Symbology

- City
- Interstate
- US Road
- County Boundary
- Water
- National Lands
- Broadband Available*
- Mobile Wireless Available**
- Broadband Likely Available***
- Unserved Areas

*Satellite broadband service is not included in broadband availability.

**This map is not a guarantee of coverage, contains areas of no service, and generally predicts where outdoor coverage is available. Equipment, topography, and environment affect service.

***In these areas, there is a strong likelihood for broadband availability; however, technology limitations in select areas may limit service to some homes.

Connected Nation has worked with broadband providers throughout the State to identify the gaps in broadband service - the first step in a statewide effort to "fill the gaps" for 100% broadband availability.

CONNECTED NATION

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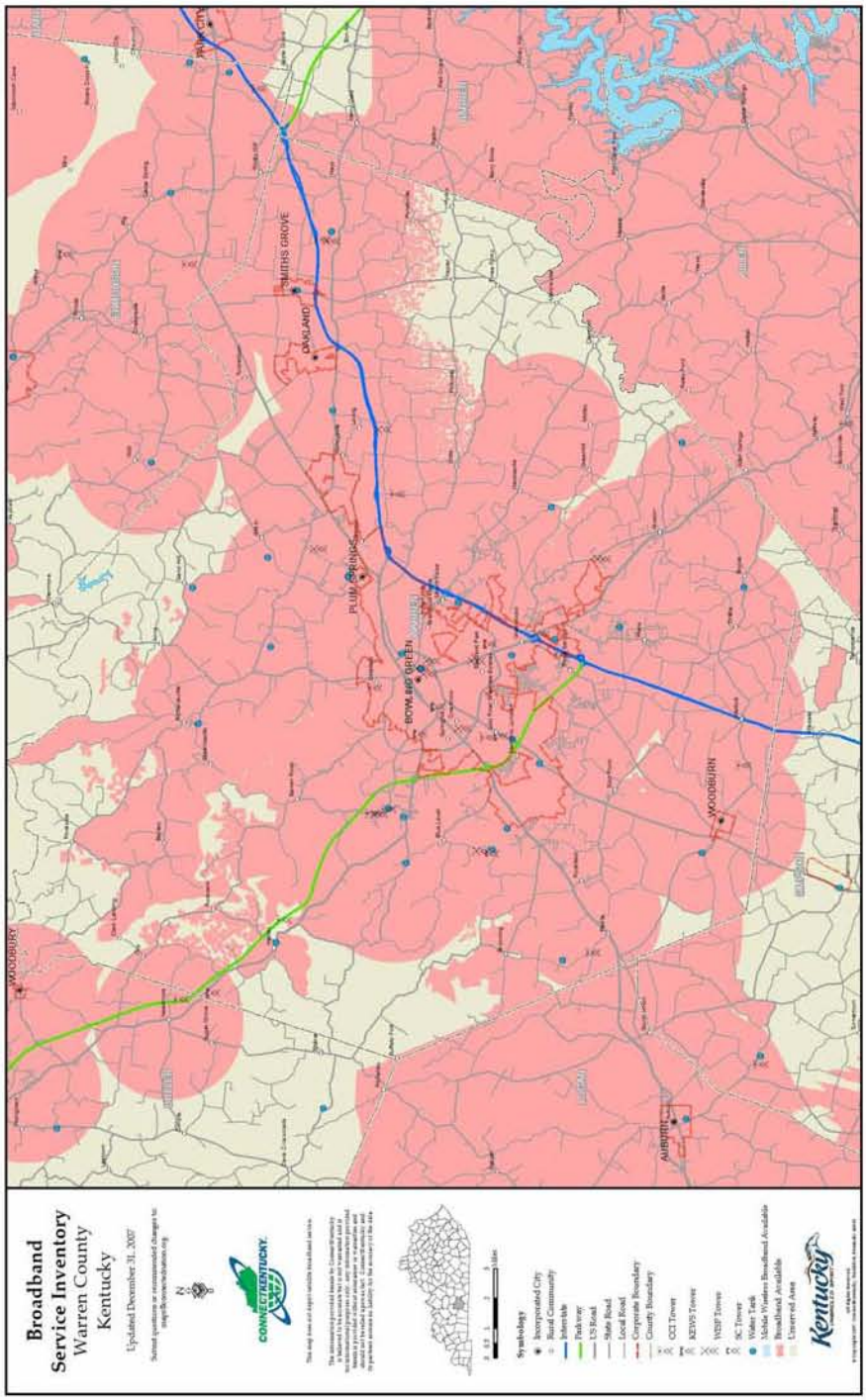
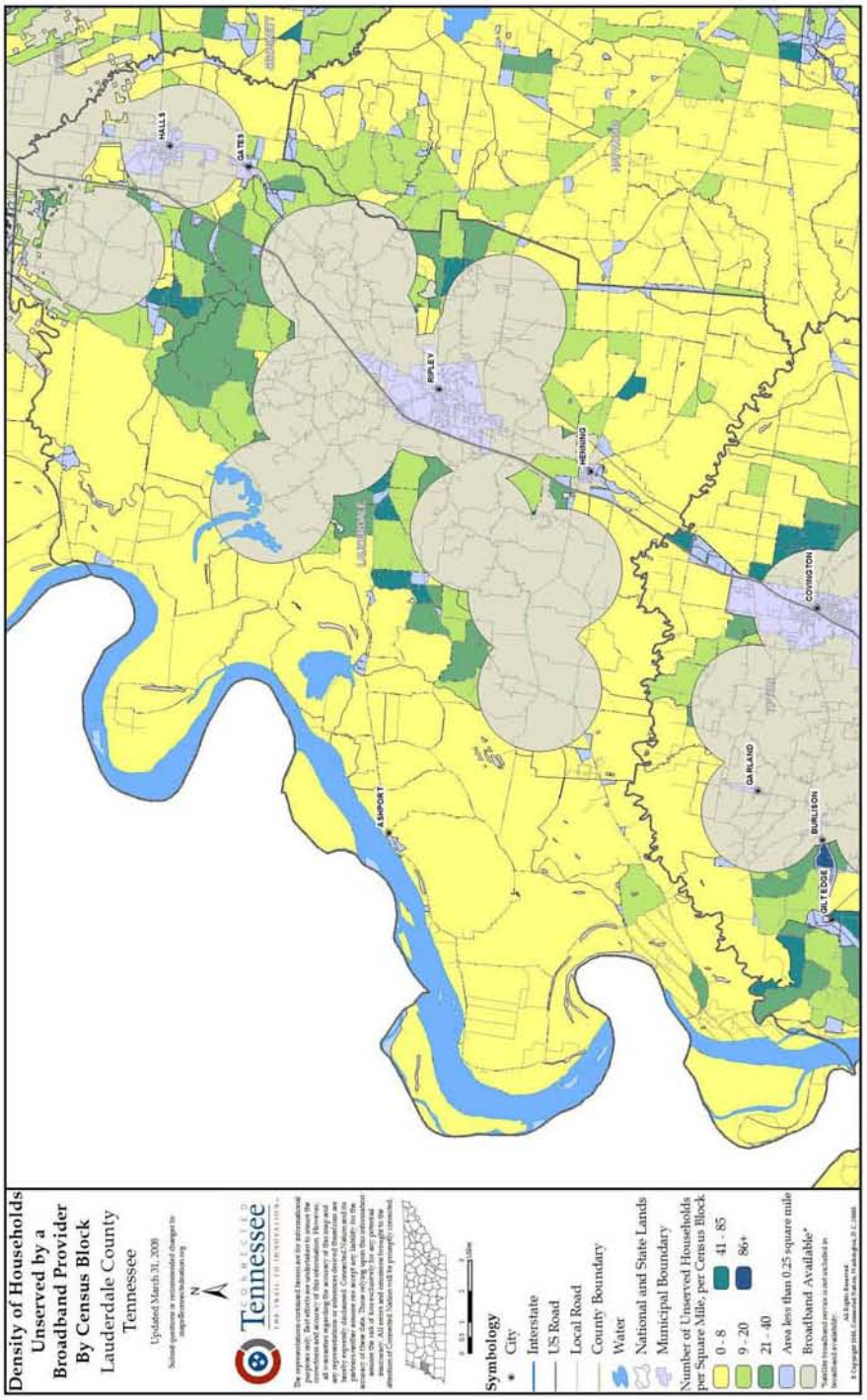

Broadband
Service Inventory
Warren County
Kentucky
Updated December 31, 2007
CONNECTKENTUCKY
Symbology
Incorporated City
Rural Community
Interstate
Parkway
US Road
State Road
Local Road
Corporate Boundary
County Boundary
CCI Tower
KEWS Tower
WISP Tower
3C Tower
Water Tank
Mobile Wireless Broadband Available
Broadband Available
Unserved Area
Kentucky
BOWLING GREEN
WOODBURN
SMITHS GROVE
OAKLAND
PLUM SPRINGS
AUBURN
PRINCETON


Density of Households
Unserved by a
Broadband Provider
By Census Block
Lauderdale County
Tennessee
Updated March 31, 2008
Symbology
City
Interstate
US Road
Local Road
County Boundary
Water
National and State Lands
Municipal Boundary
Number of Unserved Households
per Square Mile, per Census Block
0 - 8
9 - 20
21 - 40
41 - 85
86+
Area less than 0.25 square mile
Broadband Available*
ASHPORT
RIPLEY
HENNING
COVINGTON
GARLAND
BURLISON
GILT EDGE
HALLS
GATES

CONNECTED NATION

WWW.CONNECTEDNATION.ORG

444 North Capitol St
Suite 224
Washington, DC 20001

1-877-846-7710

November 26, 2008

Ex Parte Communication

Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street SW
Washington, DC 20554

RE: Notice of Written *Ex Parte* Communication in WC Docket No. 05-337, CC Docket No. 96-45, WC Docket No. 03-109, WC Docket No. 06-122, CC Docket No. 99-200, CC Docket No. 96-98, CC Docket No. 01-92, CC Docket No. 99-68, WC Docket No. 04-36

Dear Ms. Dortch,

Connected Nation was founded with the goal of helping ensure that all communities in America—urban and rural alike—have access to and use broadband technology, so as to promote the economic, educational, and social development of those communities. Without effective access to and use of broadband technology, many of America's communities are threatened with stagnation, and such stagnation would indeed threaten the economic and social future of the country as a whole. It is imperative that that Commission's universal service structure is aligned with the national policy goals of rapid, effective, and efficient deployment and adoption of broadband services.

For these reasons, Connected Nation strongly supports the Commission's proposal to extend the federal Lifeline and Link Up universal service funds to support the purchase of broadband services by low-income households.[1] The extension of Lifeline and Link Up to broadband is an important first step in mitigating the economic barriers to adoption of broadband. But it is only a first step, and it must be one that is taken in a way that does not inadvertently exacerbate other barriers that hinder broadband availability and adoption. In this letter, we outline two concerns that we have with the Commission's proposal and make modest suggestions that will help ensure that this laudable effort is effective and will benefit the greatest number of Americans.

[1] *In the Matter of High-Cost Universal Service Support, et al.*¸ WC Docket No. 05-337, CC Docket No. 96-45, WC Docket No. 03-109, WC Docket No. 06-122, CC Docket No. 99-200, CC Docket No. 96-98, CC Docket No. 01-92, CC Docket No. 99-68, WC Docket No. 04-36, Order on Remand and Report and Order and Further Notice of Proposed Rulemaking (rel. Nov. 5, 2008) (hereinafter "Further Notice"), Att. A at ¶¶64-91, Att. C at ¶¶ 60-87. With regard to the Lifeline and Link Up proposals contained therein, both Attachment A and Attachment C appear to be identical.

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Having developed and implemented grassroots broadband demand-stimulation programs in several states,[2] Connected Nation is well aware of the challenges to broadband adoption that low-income households face. In addition to the monthly cost of broadband service, these challenges include computer ownership and even basic computer skills training. Many of our programs are intended to overcome these barriers, and our experience with these programs has resulted in a growing body of research that demonstrates that there is a need for broadband programs targeted at low-income households. Connected Nation routinely surveys residents as to why they do not subscribe to broadband services. In these surveys, residents that do not subscribe to broadband frequently state that the expense of broadband or a computer is the primary reason they have not adopted the technology. Twenty-four percent of households without a computer cite expense as a barrier, and twenty-three percent of households without a broadband connection cite the expense of broadband as the reason they do not subscribe.[3] These survey results echo higher-level research which shows that core economic conditions—in particular income, income equality, and education level—play a significant role in a household's decision to subscribe to broadband service.[4]

Therefore, any effort directed at making broadband service less expensive for low-income households is likely to benefit Americans and promote the deployment and adoption of broadband services. But because other barriers to broadband service remain—in particular, the high cost of network infrastructure in many rural areas and the continued lack of demand for broadband service among many Americans—the effort to expand Lifeline/Link Up should be regarded as only part of the solution.

Unfortunately, by appearing to require that Lifeline/Link Up funds only be available to qualifying households served by providers that offer broadband throughout their service territories, the Commission's broadband Lifeline/Link Up proposal could make perhaps millions of low-income Americans ineligible for the program and may also unintentionally deter broadband deployment in rural areas. As a solution, Connected Nation proposes that broadband Lifeline/Link Up funds be available for all qualifying households, regardless of the broadband deployment status of their chosen service provider. In addition, there is a clear recognition in the Commission's proposal that the $300 million allocated to broadband Lifeline/Link Up may be insufficient to cover anticipated demand for the program. Instead of the "first come, first served" approach for disbursing funds that the Commission proposes, Connected

[2] Connected Nation subsidiaries operate comprehensive, state-funded public-private partnerships in Kentucky, Tennessee, and Ohio. These programs develop comprehensive maps of broadband availability, develop county-specific broadband technology development plans, establish eCommunity Leadership Teams across the state, and manage low-income computer education and distribution programs. *See* Comments of Connected Nation, Inc., WC Docket No. 05-337, CC Docket No. 96-45, (filed Apr. 17, 2008), at 2-16. As of this writing, Connected Nation also maintains operations in a number of other states.

[3] Connected Nation, Inc., *Consumer Insights to America's Broadband Challenge* (Oct. 13, 2008), at 7. As discussed below, the survey results also demonstrate the value of a broadband stimulation program—the answer that a consumer "does not need" either a computer or broadband service is cited most often by non-adopters in Connected Nation surveys.

[4] *See* G.S. Ford, T.M. Koutsky and L.J. Spiwak, *The Demographic and Economic Drivers of Broadband Adoption in the United States*, Phoenix Center Policy Paper No. 31 (Nov. 2007) (noting that low household income and income inequality explain a significant amount of the differences in broadband adoption among the states).

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Nation proposes that priority be given to states that have implemented a comprehensive broadband education and demand-stimulation program which addresses low-income households. Our experience has shown such programs can have a significant positive effect on broadband adoption and further broadband deployment, without the need for a direct subsidy. This prioritization would mean that Lifeline/Link Up federal subsidies would be targeted for the hardest-to-reach and most needy households.

Lifeline and Link Up Support Should Be Available to All Qualifying Households, Regardless of the Broadband Deployment Plans of Their Service Provider

Both of the Commission's proposals to expand Lifeline/Link Up appear to limit the availability of those funds to service providers that provide broadband service throughout their *entire* service area. In particular, Paragraph 87 of Attachment A (and the identical Paragraph 83 of Attachment C) proposes that "a participating ETC must offer the services to all qualifying low-income customers throughout its service areas."[5]

With all due respect, the proposed approach uses backwards logic that would likely result in the unintended consequence of less broadband investment in unserved areas. Income and income inequality is an important *reason* why households do not subscribe to broadband. In areas where households are less likely to subscribe, it is a harsh economic fact that a broadband service provider will have a sharply reduced incentive to deploy broadband services. As a result, requiring that a service provider make broadband service available universally *before* any of the low-income households in that area are eligible to receive Lifeline/Link Up subsidies makes little logical sense.

As we discussed in our Comments in this proceeding, demand-stimulation programs like those managed by Connected Nation lower the cost of broadband deployment because they "prove the market" to service providers and make broadband investment into rural and low-income areas less risky. We have found that considerable broadband infrastructure investment follows successful demand-side efforts. The Commission's proposed approach to Lifeline/Link Up takes the opposite approach—it offers assistance to low-income households only *after* the service provider has deployed its broadband infrastructure everywhere.

Stated simply, broadband service providers are not likely to commit to universal broadband availability throughout their service areas simply so that its customers can receive Lifeline and Link Up support. More likely, low-income households served by such providers will be denied Lifeline and Link Up support, not because they do not qualify or have a need, but solely because the ETC in their area has not yet fully upgraded other parts of its network to broadband.

The impact of this proposal is likely to be felt strongest in the nation's rural communities, where the costs of universal broadband requirements are highest. According to the U.S. Census Bureau, the poverty rate

[5] Further Notice, *supra* n.1, Att. A at ¶ 87, Att. B at ¶ 83.

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outside of metropolitan statistical areas is nearly 30% higher than inside metropolitan areas.[6] Moreover, in rural areas, the costs of upgrading a network to support broadband may be hundreds if not thousands of dollars per line, and those high costs will swamp any uptick in subscribership of rural low-income households that results from a Link Up and Lifeline subsidy of $100 for installation and $10 per month. Because these areas are difficult and costly to serve, they are the areas in which low-income households would be disqualified from the Commission's broadband Lifeline/Link Up program simply because their service provider chooses not to (or cannot afford to) offer broadband service everywhere.

If this were to happen, it would be a tragedy, with both economic and moral implications. Poor, rural communities would not have access to broadband Lifeline and Link Up funds and fall even further behind, particularly as the FCC's broadband subsidies flow to large cities. Moreover, this approach would deny low-income households the benefits of the Lifeline and Link Up programs (even if service is available in their area) through no fault of their own, but solely because of the network and business decisions of their broadband provider.

When Lifeline and Link Up were created in 1984, wireline telephone service was universally available. There were virtually no instances in which a qualifying household would be turned away from Lifeline or Link Up support because of the business decisions made by its local telephone company. As a result, the universal service requirement in the Lifeline and Link Up rules had little economic or moral significance. However, broadband is not universally available today, and the Commission would be wrong to extend the universal service requirement reflexively, since this requirement would have the unintended consequence of hindering the expansion of broadband to unserved areas.

As a solution, Connected Nation proposes that the Commission make Lifeline and Link Up broadband assistance available to all ETCs that serve qualifying households, regardless as to whether that ETC offers broadband service throughout its service area.[7] Doing so will help low-income households subscribe to broadband service regardless of where they are located or the network upgrade decisions of their broadband service provider. Low-income households should not be denied access to this important program solely because of the network upgrade status of their broadband service provider.

Limited Broadband Lifeline/Link Up Funds Should Be Prioritized In Accordance with Demand-Stimulation Programs

[6] U.S. Bureau of the Census, Current Population Survey, Annual Social and Economic Supplements. Poverty and Health Statistics Branch/HHES Division, Table 8 (available at: http://www.census.gov/hhes/www/poverty/histpov/hstpov8.html).

[7] The Commission's proposal states that the Commission may give ETCs the ability, in the certification process, to identify "the service area in which the ETC plans to offer such Lifeline/Link Up broadband services." Further Notice, *supra* n.1, Att. A ¶ 79, Att. C ¶ 75 This language is ambiguous and may imply that an ETC can designate a different (and perhaps smaller) "service area" for broadband services than the ETC's "service area" designated by a state commission for universal service support pursuant to 47 C.F.R. § 54.201(b). Adopting Connected Nation's proposal would clear up this ambiguity and make it clear that Lifeline and Link Up funds would be available to any qualifying low-income household served by an ETC that offers broadband service, regardless as to whether that broadband service is available throughout the ETC's designated service area.

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In a perfect world, Lifeline and Link Up assistance would be available to each and every qualifying low-income household. But the Commission's proposal seems to admit that the $300 million per year that it allocates to the program will be insufficient to meet the demand. As a result, the Commission proposes that those funds be distributed on a "first come, first served basis."[8] While there may be a certain schoolyard fairness to "first come, first served" as a principle, it is not the most efficient method of spending limited subsidy dollars.

In our initial Comments, Connected Nation stressed that effective and efficient "universal service strategy for America should tackle both sides of the problem—demand and supply."[9] In those Comments, we proposed that broadband universal service funds initially be allocated to states that have implemented broadband demand stimulation programs. Connected Nation's surveys of residents provide strong evidence that the largest barrier to both computer ownership and broadband use is a lack of demand. More than sixty percent of residents without a computer at home say they "don't need a computer," and nearly half of residents who do not subscribe to broadband say the reason is that they "don't need broadband."[10] Because demand stimulation programs, such as computer training and broadband education programs, increase the demand for broadband service without direct subsidy dollars, they can help mitigate the size of necessary subsidies and also help make sure that subsidies are directed at the areas of greatest need.[11]

Demand-side programs can be expected to grow as a result of passage of the Broadband Data Improvement Act, Public Law 110-385. That law encourages states to improve broadband adoption and provides federal grants to states that implement public-private partnerships through a federal grant program. In passing the law, Congress found that the Federal Government "should encourage and support the partnership of the public and private sectors in the continued growth of broadband services and information technology for the residents and businesses of the Nation."[12] The Commission can advance Congress's intent by granting broadband Lifeline/Link Up priority to states that have adopted a demand stimulation program which targets and incorporates low-income households.

A "first come, first served" approach would encourage gamesmanship among providers and also likely could result in efforts to delay signing up low-income households at the end of the year. Because the demand for broadband is more elastic than the demand for wireline telephone services, marketing programs designed to front-load subscriptions at a particular point in the year are likely to be successful. The net result would be a mad dash to submit Lifeline and Link Up forms at the beginning of the year, which would leave needy households without assistance solely because they may not have qualified at the right month of the year.

8 Further Notice, *supra* n.1, Att. A at ¶ 85, Att. C at ¶ 81.

9 Connected Nation Comments, *supra* n.2, at ii.

10 *Consumer Insights to America's Broadband Challenge* at 7.

11 Connected Nation Comments, *supra* n.2, at 21-30.

12 Broadband Data Improvement Act of 2008, Pub. L. No. 110-385, sec. 102(4).

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On the other hand, if demand-side programs were in place, Lifeline and Link Up funding would be targeted to the households who need it most, regardless as to when in the calendar year they qualify for assistance. Programs that offer computer training at food banks or laptop giveaways to low-income schoolchildren go a long way in helping consumers understand the benefit and value of broadband, and Connected Nation has learned that such programs can generate a sizeable increase in broadband adoption where they have been implemented.[13] Private industry, including computer hardware and software manufacturers and broadband providers, has been more than willing to provide equipment and services to well-organized, state-led public-private initiatives.

As a result, if the Commission is forced to ration broadband Lifeline/Link Up funding, Connected Nation suggests that it initially prioritize on the basis as to whether funding is being requested from a state that has a demand-stimulation program in place at the beginning of the year. This will encourage states and private industry to join in a collective effort of providing universal service to all Americans. In addition, these demand-stimulation programs can serve as an important conduit of information about and generate awareness of the Lifeline and Link Up programs. Even with this priority, it may be impossible to avoid applying "first come, first served" principle to disbursements—but the arbitrary bite of applying that principle will be lessened because monies will be disbursed to the qualifying households that need assistance the most.

* * *

Connected Nation strongly commends the Commission's landmark efforts to extend the Lifeline and Link Up programs to broadband services. The economic barriers to broadband adoption and deployment are real. Time and again, our grassroots work in states reiterates and reaffirms the fact that for many low-income households, particularly those in rural areas, the cost of a computer and a broadband connection is simply too much to afford. We share the Commission's goal of providing federal assistance to help low-income households overcome those barriers.

To that end, Connected Nation proposes two modifications to the Commission's proposal. First, broadband Lifeline and Link Up should be available to *all* qualifying households, regardless of the status of the broadband network upgrade of their service provider. The Commission has proposed that broadband Lifeline/Link Up be available only to those qualifying household customers of ETCs that offer broadband throughout their service area. Perhaps inadvertently, this requirement could deny Lifeline and Link Up benefits to millions of rural Americans, through no fault of their own. Given that the poverty rate is greater in rural America than in metropolitan areas, this exclusion is particularly significant.

Second, given that the Commission seems to recognize that $300 million is not enough to fully fund the Lifeline and Link Up broadband program, Connected Nation suggests that the Commission prioritize disbursements based upon whether the request for support comes from a state with a broadband demand

[13] For example, ConnectKentucky's No Child Left Offline program distributed 2,000 computers to disadvantaged individuals and families in certain counties. Research has shown that broadband adoption among low-income families in those counties grew four times as fast as broadband adoption in other areas of the state. Connected Nation Comments, *supra* n.2, at 14.

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stimulation program in place at the beginning of the year. Once educated about computer technology and the benefits of broadband to their economic futures and that of their children, Connected Nation has learned that many consumers subscribe, even without access to Lifeline and Link Up. Prioritizing broadband Lifeline/Link Up to states that have a broadband demand stimulation program will encourage and leverage collaborative support from states and private industry and will help direct those limited universal service funds toward qualifying households in greatest need.

Respectfully,

Brian R. Mefford
Chairman & CEO

cc: Chairman Kevin J. Martin
Commissioner Michael J. Copps
Commissioner Jonathan S. Adelstein
Commissioner Deborah Taylor Tate
Commissioner Robert M. McDowell
Dana R. Shaffer, Chief, Wireline Competition Bureau